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## ZOOLOGY.

**Terminology of the Nerve Cell.**—Fish attempts<sup>1</sup> to avoid some of the confused terminology of Neurology by proposing a consistent nomenclature, adopting to some extent existing terms. Thus he would call the entire nerve cell, with its appendages, neurocyte; the axis cylinder prolongation; neurite; the other processes dendrites, and the neuroglia cell, spongiocyte. Nerve cells would then be dendritic or adendritic, mono- or dineuritic, etc., according to the number and character of the processes concerned.

**Structure of Clepsine.**—Oka has attempted<sup>2</sup> the solution of some of the problems of Hirudinean anatomy. After some remarks on external morphology, he takes up in succession the body cavity, blood vessels, nephridia and the systematic position of these animals. The text is rendered much more easy of comprehension from the reconstructions on the plates. Oka recognizes in the lacunæ of the body the true coelom which is broken up into a large number of anastomosing cavities, in which may be recognized the following principal regions: in the middle of the body, a median dorsal and a median ventral lacuna, in each of which run blood vessels. In front and behind these fuse into a "median" lacuna. These lacunæ are connected by short canals with a complicated "zwischenlacuna," which runs the length of the body on either side, and this in turn by segmentally arranged tubes with a lateral lacuna on either side. These various spaces are also connected with a subepidermal system of lacunæ, the principal canals of which correspond to the annuli of the external surface. In the blood vascular system, which is cut off completely from the lacunar cavities, segmentation has largely disappeared. In but few regions can even the most remote resemblance to a segmental arrangement of vessels be traced, although the dorsal vessel shows segmental enlargements. The nephridia are described at length, the account confirming and supplementing the descriptions of Whitman, Bourne and others, and disagreeing *in toto* with those of Bolsius, except in that they confirm the latter in the description of an ectodermal terminal portion.

In conclusion, Oka thinks the Hirudinei nearest the Oligochaetes, basing this view upon chiefly three factors: (1) the existence of a seg-

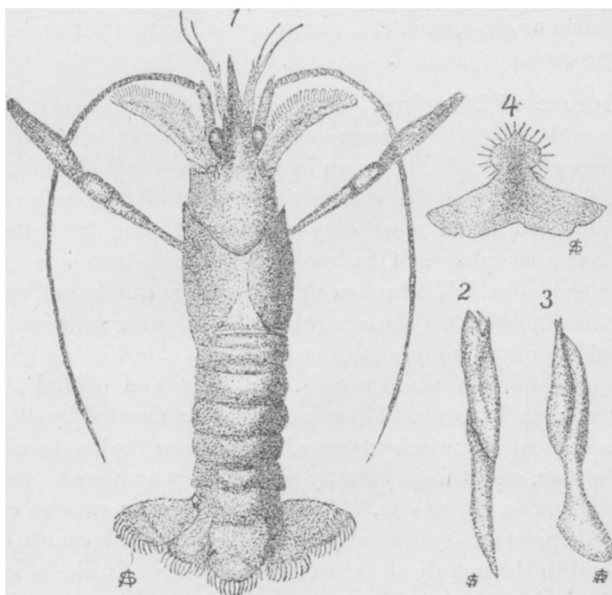
<sup>1</sup> Jour. Comp. Neurology, iv, 1894.

<sup>2</sup> Zeitschr. wiss. Zool., lviii, 1894.

mented cœlom; (2) a blood vascular system distinct from the cœlom and (3) a pair of nephridia in each somite; points which it seems to the present writer, imply only Annelid affinities since they fit Polychætes as well as Oligochætes.

**A new *Cambarus* from Arkansas.**—*Cambarus faxonii* sp. nov.

Male, form 1, rostrum broad, elongate, deeply excavated above, margins raised into sharp parallel ridges, each ending in prominent spines. Acumen very long and slender, curved upwards; post orbital ridges prominent, each ending in a prominent spine.



Carapax cylindrical, slightly compressed, smooth; cervical groove moderate, a prominent spine on each side. Distance from cervical groove to posterior margin of carapax  $2\frac{1}{2}$  to 3 in distance from cervical group to tip of acumen, and equal to length of acumen. Anterior 1-2 of the areola narrow, its posterior portion triangular. Abdomen broad and slightly shorter than cephalothorax (including acumen). Outer posterior part of telson ending in a prominent spine inside of which is a much smaller spine, posterior margin of telson slightly emarginate. Anterior process of epistoma triangular. Basal segments of antennules with a spine on under inner border, about middle of segment. Antennæ shorter than the body, antennal scale long and narrow (its

length almost three times its greatest width), slightly curved outward and ending in a sharp spine, equals the rostrum.

Basal segment of antennal scale with a prominent spines on anterior lateral borders. Chelipeds slender, not tuberculated, slightly hairy; fingers shorter than hand, opposed margins of the fingers straight, hand smooth; carpus smooth; a spine on inner and outer distal borders. Meros smooth with one spine on upper and one on outer side, and two below, all spines on distal 1-3. Third pair of legs hooked, fifth pair with a small roundish tubercle on basal joint.

Anterior abdominal appendages strong and of moderate length, tips reaching between third pairs of legs, bifid at apex, apex of inner part posterior and acute, its tip turned slightly outward, outer bluntish.

Color of this species somewhat mottled with bluish on antennal scale and rostrum, forming cross bars.

This is apparently a small species. The largest specimens taken were females, length (from tip of acumen to posterior margin of telson) of largest specimens,  $2\frac{1}{2}$  inches. The size of average males,  $2\frac{1}{4}$  inches.

This species is easily recognized by its long, slender acumen, small hand, slender antennal scale and its small size. Found in St. Francis River at Greenway and Big Bay. It is by no means abundant. This and young of one other species, *C. palmeri*, are all I found in the St. Francis River.

Named in honor of Dr. Walter Facon, to whom we owe more than to anyone else our knowledge of North American crayfishes.

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#### EXPLANATION OF FIGURES.

1. Dorsal view of specimen, x, 1.31.
2. Abdominal appendage, inner view, x, 4.35.
3. Abdominal appendage, posterior view, x, 4.35.
4. Epistoma, x, 4.

The drawings were made by Miss Allie Simonds, Arkansas University, Class 1895.

S. E. MEEK,

Arkansas University,

Oct. 22, 1894, Fayetteville, Ark.

**A New Bassalian Type of Crabs.**—In a recent number of the Journal of the Asiatic Society of Bengal (v. 63, part 2, No. 3), a most remarkable crab has been described and illustrated by Messrs. A. Alcock and A. R. Anderson. It has been designated (p. 141) as "*Archæ-*

*oplax*, a Gonoplacid (?) crab of a remarkably antique facies, which appears to be closely connected also with *Cymopolia*.”<sup>3</sup>

The description and figures appear to me to indicate that the new crab has no close relationships with either the Gonoplacids or *Cymopolia*.

Through the kindness of Miss Rathbun, of the Invertebrate department of the U. S. National Museum, I have been able to study specimens of all types and compared them with the data respecting *Archæoplax*, and could find no special features of agreement. *Archæoplax*, it seems to me, must be considered entirely independently of the types with which it has been contrasted.

I may preface the further remarks I have to make with the statement that the crab so called by Messrs. Alcock and Anderson cannot retain the name given to it by them—*Archæoplax*—as precisely the same form had been bestowed more than 30 years ago on an extinct genus, also of the superfamily of Grapsoidea, represented by fossils from Gay Head, Mass. *Archæoplax signifera* was the name given by W. Stimpson to miocene tertiary remains found there, and described in the Boston Journal of Nat. Hist. (vol. 7, p. 584, 1863).

As a new name is therefore necessary, I would suggest as eminently appropriate for the crab made known by Messrs. Alcock and Anderson, the generic designation *Retropluma* (*retro*, back or backward, and *pluma*, a soft feather). The applicability will become evident in due course.

When I first saw the figure of the mouth parts I inferred that the external pair of maxillipeds had been lost, but Messrs. Alcock and Anderson expressly declare (p. 182) that “the external maxillipeds are so small and slender as to leave completely exposed the mandibles, the wide endostome, and a part of the wide and produced efferent branchial channels.” They give the figures as those of a perfect animal, and apparently had a number of specimens.<sup>4</sup> We are, therefore, placed in the dilemma of assuming that the crab differs radically from all others, or that the learned authors may have been mistaken; I prefer, in this dilemma, to leave the question open for re-examination by the original describers.

The new type, however, differs in another character almost as remarkable as would be such an extreme and anomalous modification of the maxillipeds supposed by its describers.

<sup>3</sup> It is later (p. 180) suggested that “its nearer affinities are, perhaps, with the *Macrophthalmines*.”

<sup>4</sup> “Bay of Bengal, at almost all stations off the Coromandel coast, from 140 southwards, between 100 and 250 fms.” P. 183.

"The fifth pair of trunk legs is quite unique in form and disposition: they arise quite close to the middle line of the body and high up, almost on the back; they are short, being considerably less than the breadth of the carapace in length, and are very slender and flexible; and they are so thickly fringed with shaggy hairs as to appear like feathers."

This peculiar modification of the last pair of limbs is very unlike that of the corresponding legs in the notopodous or anomurous brachyurans, and indicates that some special function may be assumed. The loss of geniculation and the straightness, the slenderness and flexibility, and the dense hairylike covering must mean something. May it not be that the peculiarly modified limbs have been specialized for purposes of aërication of an increased vascular supply, and that they have become functionalized as branchiæ? Until some better hypothesis can be suggested or tested by histological examination, bold as it may seem, the explanation cannot be considered irrational.

As has been already remarked, *Retropluma* has no close relationship with the forms compared with it or with any other known types. It should, therefore, be regarded as the representative of an independent family—*Retroplumidæ*—especially characterized by the peculiarly modified fifth pair of feet, want of true orbits, and position of the antennæ. For the present it may be retained in the superfamily or tribe *Grapsoidæ*, on account of the reduced number of branchiæ ("six on each side") and form of body. If, however, the illustrations and description of the mouth parts are correct, it must be widely removed. The only known species is *Retropluma notopus*.

I cannot appreciate any "remarkably antique facies in the new crab." On the contrary, it appears to be a form excessively modified for deep sea life.—THEO. GILL.

**Note on the Occurrence of *Hyla andersonii* in New Jersey.**—About the middle of June, 1889, Mr. Louis M. Glackens and the writer were engaged in general biological studies along the Atsion and Batsto Creeks, in Atlantic and Burlington Counties, New Jersey. On the night of June 17th we stopped at Pleasant Mills. Shortly before sundown a thunder storm arose, just previous to and during which the frogs became very noisy in a swampy thicket near by.

The note was an unfamiliar one and invited investigation, which resulted in the capture of two specimens of this handsome and rare species. The shrill quack-ack, which at the time was compared to the note of a frightened guinea fowl, and which is not unlike the call of a

rail, was constant and seemed to come from every tree; but during our progress through the thicket the voices immediately around us, for a radius of about 25 feet, were silent. This circumstance and the oncoming darkness made it difficult to secure specimens, although the frogs were so abundant. The two secured were found perched on the lower sides of branches of the pines with dilated and vibrating throats, though at the moment they were silent; and it was noted that they emitted an odor which was likened to that of raw green peas. The color above in life was a bright pea green, quite unlike the dull olive green of spirit-preserved specimens. The lateral stripe was of a very rich velvety purple. The following morning we could find no trace of them, but later in the day heard another chorus in the middle of a dense swampy thicket. Since then Mr. H. F. Moore and myself have repeatedly visited the locality in quest of the *Hyla* and its eggs, but entirely without success. To the natives the frog is unknown.—J. PERCY MOORE.

**Yolk Nucleus of *Cymatogaster*.**—J. W. Hubbard, in a paper,<sup>5</sup> the proof-reading of which could be better, shows that the yolk nucleus in these fish eggs is produced from the true nucleus, soon after the cell becomes differentiated as an egg, that it migrates towards the vegetative pole, and after the closure of the blastopore, it breaks up and disappears in the yolk. He claims that the same structure occurs in many eggs and has been mistaken for the spermatozoon, and thinks it homologous with the meganucleus of the Protozoa, a conclusion which needs more support than is advanced in the paper. The review of the literature omits several important papers.

**Zoological News. PROTOZOA.**—Gruber, in his *Amöben-Studien*,<sup>6</sup> comments on the great rarity of observations on the division of the *Amöba*, and especially calls attention to the absence of any observations upon the mitotic division of the nucleus. He calls upon other observers to make observations on this point. He has had an opportunity of directly comparing *Rhizopods* from Massachusetts and from the Black Forest, and says that the forms from the two localities are identical. Some remarks are made upon specific characters in the *Rhizopods*.

**CÖLEENTERATA.**—Grieg, in a paper but recently received,<sup>7</sup> catalogues 30 species of *Pennatulida* as belonging to the Norwegian fauna.

<sup>5</sup> Proc. Am. Philos. Soc., xxxiii, 1894.

<sup>6</sup> Bericht Naturf. Gesellsch., Freiburg, viii, 1894.

<sup>7</sup> Bergens Museums Aarsberetning for 1891, 1892.

Apellöf, in the same volume, describes several structures in the anatomy of *Edwardsia*. Among the points brought out are the presence of a nervous system in the capitulum, the absence of siphonoglyphes, of septal stomata, of acontia. Its nearest affinities appear to be with *Proanthea* of Carlgren (1891).

WORMS.—Stiles calls attention<sup>8</sup> to the discovery in a cat, by H. B. Ward, of *Distoma westermanni*, a fluke new to the U. S. The same species is a common parasite in man in Eastern Asia.

Ward describes<sup>9</sup> *Distoma opacum*, parasitic in *Amia calva*, *Ictalurus punctatus*, and *Perca flavescens*. In its structural characters the species is closest to *D. pygmaeum* of the eider duck. The fish become infested by feeding upon crayfish (*Cambarus propinquus*), in which the parasite was found encysted.

CRUSTACEA.—Miss Mary J. Rathbun describes<sup>10</sup> four new species of crabs from the Antillean region and gives<sup>11</sup> a series of notes upon the species of *Inachidæ* in the National Museum. There seems to be a tendency in these and other papers to differentiate genera and species on too minute and too variable characters, which, we hope, will not be continued in the promised Synopsis of North American Crustacea.

ARACHNIDA.—Purcell's complete paper on the eyes of harvestmen has appeared,<sup>12</sup> and the illustrations make clear the difficulties of his previous paper, already noticed (this volume, p. 345).

Bernard<sup>13</sup> calls attention to the fact that the Galeodidæ, instead of lacking lateral eyes, have these organs transferred to the lateral surface, where they look downwards and forwards. Bernard thinks these organs are in process of atrophy, although one would not draw such conclusions from the rough figure of a section which he gives.

Simmons describes<sup>14</sup> the development of the lungs and tracheæ in spiders. The lungs develop on the posterior surface of the anterior abdominal appendages, and the appendages, sinking in form the anterior wall of the pulmonary sac. The tracheæ in their earlier stages are like the lungs, and later begin to penetrate the body. "From this it follows that the lung-book condition is the primitive one, the

<sup>8</sup> Johns Hopkins Hospital Bulletin, No. 40, 1894.

<sup>9</sup> Proc. Am. Soc. Microscopists, xv, 1894.

<sup>10</sup> Proc. U. S. Nat. Mus., xvii, p. 83, 1894.

<sup>11</sup> Tom. Cit., p. 43.

<sup>12</sup> Zeitschr. Wiss. Zool., lviii, 1894.

<sup>13</sup> Ann. and Mag. Nat. Hist., xiii, 517, 1894.

<sup>14</sup> Am. Jour. Sci., xlviii, 1894. Tuft's College Studies, No. 2.



tracheæ of the Arachnids being derived from it. And with these facts there is left no ground for those who regard the 'Tracheata' as a natural group of the animal kingdom."

HEXAPODA.—Schott has a monograph of palæarctic Thysanures in Vol. xxv of the Handlingar of the Swedish Academy, 133 species and varieties are enumerated, of which 9 are new. Seven plates illustrate the article, which cannot be neglected by entomologists.

A most interesting paper on the relations between attitude and color of European butterflies is given by Dr. Standfuss in the Zürich Society's Vierteljahrschrift for 1894.

HEXAPODA.—Scudder gives<sup>15</sup> a synopsis of the ringless locustarians of the tribe Ceuthophili. Six genera and 67 species are described.

MOLLUSCA.—Dall has monographed<sup>16</sup> the genus *Gnathodon*. From a consideration of large suites of specimens, and of young as well as old, and also from a study of the soft parts, he concludes that the genus is distinctly Mactroid in character. Ten species and varieties are enumerated.

Dr. Stearns<sup>17</sup> catalogues, with notes, a collection of shells from Lower California and adjacent waters, made by W. J. Fisher in 1876, together with those of other collectors. The paper has great value in matters of synonymy and geographical limits of species.

Apellöf records<sup>18</sup> the presence of several North American species of Cephalopods on the Norwegian coasts, and describes an example of *Eledone cirrhosa* in which the third right arm of both sides is hecotoctylized.

FISHES.—Gill shows<sup>19</sup> that our American pike perches must continue to bear the generic name *Stizostedion*, and that the European *Lucioperca marina* has more affinities with the other European species than with any American forms.

The same author also pleads<sup>20</sup> for the use of *Pœciliidæ* instead of *Cyprinodontidæ*, and discusses the nomenclature of the Lampreys, discarding his previously advanced name of *Ammocoetes* for the genus *Lampetra*. He further makes a family *Mordaciidæ* for the genus

<sup>15</sup> Proc. Amer. Acad. Arts and Sciences. xxx, 1894.

<sup>16</sup> Proc. U. S. Nat. Mus., xvii, 1894.

<sup>17</sup> Tom. Cit., 1894.

<sup>18</sup> Bergens Museums Aarbog for 1892, 1893.

<sup>19</sup> Proc. U. S. Nat. Mus., xvii, 1894.

<sup>20</sup> L. c.

Mordacia. In a fourth paper he discusses the subdivisions and relationships of the Salmonidæ and Thymallidæ.

E. D. Cope catalogues<sup>21</sup> a collection of 42 Fishes from the Rio Grande do Sul, Brazil. Of these, 17 are new. The species of Characinidæ and Siluridæ, 15 and 14 respectively, predominate.

BATRACHIA.—Miss Platt has published<sup>22</sup> her complete paper on the origin of the cartilaginous structures in the head of *Nicturus*, to which reference was made on p. 637 of the present volume.

Peter has studied<sup>23</sup> the vertebræ of the Cæcilians, and concludes that the evidence from these structures justifies the view of Wiedersheim (1879) and Cope (1884) that these forms should be assigned to Urodela. Regarding Cope's view, adopted by the Sarasins, that in *Amphiuma* we must recognize the ancestral form of the Cæcilians, Peter says, "there is indeed a certain similarity in the vertebræ of *Apoda* and *Amphiumidæ*, but no greater than exists between them and *Siren*, so that the view of this student is supported chiefly by developmental conditions."

MAMMALS.—Dr. E. A. Mearns describes<sup>24</sup> as new, *Sigmodon minima*, from New Mexico.

Dr. J. A. Allen points out<sup>25</sup> that the skull in *Neotoma* is extremely variable, and that "species" founded on certain cranial characters are frequently not of varietal rank.

<sup>21</sup> Proc. Am. Philos. Soc., xxxiii, 1894.

<sup>22</sup> Archiv für mikros. Anat., xliii, p. 911, 1894.

<sup>23</sup> Karl Peter. Die Wirbelsäule der Gymnophionen. Dissertation. Freiburg, 1894.

<sup>24</sup> Proc. U. S. Nat. Mus., xvii, 1894.

<sup>25</sup> Bulletin Amer. Mus. Nat. Hist., vi, 1894.